Environment Canada Comments On:

DRAFT GUIDELINES FOR THE PREPATATION OF AN ENVIRONMENTAL IMPACT STATEMENT - THE BEAUFORT SEA HYDROCARBON PRODUCTION PROPOSAL

(August 1981)

ENVIRONMENT CANADA COMMENTS ON:

Draft Guidelines for the Preparation
[illegible]
The Beaufort Sea Hydrocarbon
Production Proposal

Approved by:

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Senior Assistant Deputy Minister

Recommended by:

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Project Manager

August 1981

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Introduction

Environment Canada is pleased to participate as an intervenor in the Beaufort Sea Environmental Assessment Panel's review of the Beaufort Sea Hydrocarbon Production Proposal. Beaufort Sea oil production projects could have unprecedented consequences for Canada's arctic environment and we therefore attach particular importance to this environmental assessment review. We will endeavour throughout the process to assist the Panel in any way we can, with emphasis on those matters that pertain most directly to the mandates of the Department.

We consider the establishment of guidelines for the preparation of an Environmental Impact Statement (EIS) as one of the more important steps in the process. We have, therefore, undertaken a thorough review of your Draft Guidelines for the Preparation of an Environmental Impact Statement (June 1981).

This review identified several serious deficiencies that Environment Canada feels must be overcome before the guidelines can be considered acceptable. These deficiencies are outlined below under the title "General Deficiencies" and are listed in approximate order of importance. More detailed comments are contained in the section entitled "Specific Comments".

Environment Canada will be participating in the upcoming meetings on the draft guidelines, at which time we will take the opportuntiy to present our views publicly and answer any questions the Panel or others may have. If the Panel wishes to discuss our comments or sees a need for clarifying certain points beforehand, this can be arranged by contacting G. Fitzsimmons of Environment Canada's Beaufort Sea Project Office in Edmonton (403-420-2577).

General Deficiencies

1. Lack of a Clearly Defined Purpose for the Guidelines

In order to comment intelligently on the adequacy of any guidelines it is essential that the reviewer clearly understand their purpose -- what they are guidelines for. A clear statement of purpose is also essential if those charged with following the guidelines are to be expected to fully understand and, therefore, adequately fulfill their intent. No clear statement of purpose exists in the draft guidelines document; Environment Canada considers this to be a critical omission.

It is inadequate to state, as has been done in the draft guidelines document, that the guidelines are for the preparation of an Environmental Impact Statement for a Beaufort Sea Hydrocarbon Production Proposal. The nature of the "proposal" must be clearly defined, for it is evident that it is not a concrete, specific project proposal such as is usually the subject of an EIS, but a broad concept or scenario that is subject to change, perhaps dramatic change. The draft guidelines fail to address this essential point. It should be evident that the nature of the "proposal" will influence the nature of the EIS that will be required to adequately assess it, which in turn will influence the nature of the guidelines that are required.

The petroleum industry recognizes this relationship in its June 1981 publication entitled Hydrocarbon Development in the Beaufort Sea - Mackenzie Delta Region (hereafter referred to as the "industry document"): "The petroleum industry agrees that this new approach has merit, but recognizes that it changes the basic character of the EIS. It becomes part impact statement and part regional planning document" (page 2). This is industry's perception of how the nature of the proposal changes the nature of the EIS. The guidelines must state the Panel's perception and the initiator's (DIAND).

Equally essential to understanding the purpose of the guidelines is a description of how the EIS will be used -- what kinds of decisions or recommendations will be based on it and in what ways will they be implemented. The intended uses of the EIS will obviously influence its nature and content, and thus the nature and content of the guidelines. On page 1 of the industry document the industry states that it "is seeking an environmental and socio-economic approval in principle, as an outcome of this review." Does the Panel and, equally importantly, the initiator, have the same perception of the possible outcome and, if so, what exactly is an "approval in principle" and what relationship will this have to other future approvals?

The results of the Beaufort Sea EARP represent one input into the overall decision-making process on Beaufort Sea development. The nature of the EIS that is required at this point will depend on how this input will be used in the various component parts of this process as well as the nature and relationship of the component parts themselves. For example, the nature of any future project or site-specific environmental assessments that may be required within the overall decision-making process should influence the nature of the EIS that is required to review the Proposal at this point in time. The draft guidlines fail to adequately define these future assessment requirements, what mechanisms will be used, when and under what circumstances they will be employed and most importantly, how the decisions or recommendations arising from the present EARP would relate to these future processes.

In addition to the post-EARP decision-making process, several other components of the process need to be defined in order to clearly understand the role of the present EIS. These include (1) the decision process related to exploration activies, (2) regional planning, and (3) assessment mechanisms that will be applied to those components of the proposal that are outside the terms of reference of the present

Panel (i.e., components south of 60 degrees such as tanker terminals along the Atlantic coast and potential impacts outside Canada, primarily the U.S. and Greenland).

Definition of the role of the decision making process(es) related to "exploration" activities is important because this activity is already, and will increasingly be, of major proportions, posing many of the same environmental threats as production. There is the potential that this on-going, incremental development may seriously compromise the present EARP and other long-range planning processes by precluding development options before they have been publicly assessed.

It is even more essential to define the role of regional planning in the overall decision-making process because there is a danger that, in the absence of a clearly defined regional planning mechanism, EARP will become that mechanism by default. The previous quotation, from page 2 of the industry document, clearly demonstrates that this danger is real. The Panel has not, however, been mandated to do regional planning. Other mechanisms designed to allow the hydrocarbon development proposal to be evaluated, not in isolation, but in relation to other development and non-development options, exist for this purpose. The relationship between these mechanisms and the Beaufort Sea EAR Process need to be clearly defined.

The lack of these two essential elements in the draft guidelines -- (1) a clear definition of the nature of the proposal and (2) an overall decision making framework that defines the role of EARP generally and the EIS specifically -- makes it impossible to fully understand the nature of the EIS that is required and in turn to comment confidently on the adequacy of the draft guidelines.

The remaining comments by Environment Canada on the draft guidelines are put forward, knowing that each of the reviewers who contributed made his own assumptions about the nature of the proposal and the nature of the EIS required. The Panel may have difficulty analysing and synthesizing the comments it receives, because other reviewers as well will have based their comments on their own assumptions of the purpose of the document they were reviewing.

We suggest the Panel now issue a supplement to the draft guidelines that clarifies their purpose, and, that it allow additional time for reviewers to re-assess their comments, and to make changes if required. At the least, we suggest that this major deficiency be corrected in the final guidelines. If the overall decision making process is not presently defined, the Panel should request the initiator (DIAND) to define the process and submit it as part of the EIS. The process must clearly define the key decision points, the information required to make these decisions, the decision makers, the relationship among the various decision-making processes and expected schedules.

2. Uncertain Rate of Development

One of the key considerations in predicting environmental impact, in addition to the nature and scope of the development, is the rate of development. The lead time before a development starts and the pace of the development can influence the degree of impact. This is particularly true in the case of the Beaufort Sea Hydrocarbon Development Proposal where there are so many knowledge gaps regarding the environment that require time to fill and where the risk factor is greatly increased due to harsh climate and the use of emerging technology.

In the industry document it states that the development scenarios are based on a "rate of development...considered to be the upper limit of what may be technically achievable" (page 12). Technical feasibility is not the only factor, however, that will influence the rate of development. There are many others, some of which are mentioned in the industry document: "discovery rates, well productivities, reservior geometry, economics, total reserves, market demand and lead time required for development." (page 8). A key factor not mentioned, however, is competition from other major hydrocarbon developments within Canada. The industry's production timetable for some of these developments (e.g., Hibernia) is similar to that for the Beaufort Sea, and there is the potential that, if present timetables are followed, the combined production from these develoments may, in the near future, exceed domestic requirements. The question that needs to be answered immediately is whether or not the Canadian government wants hydrocarbon production in Canada to exceed domestic requirements. If it does not, this policy decision may have very important implications for the rate of development in the Beaufort Sea and consequent environmental impacts.

Environment Canada considers it essential that the question of rate of development be clarified at the beginning of the EARProcess for the Beaufort Sea. If it is not, and if the industry's proposed rate of development differs markedly from what will be allowed by the Canadian government, the Panel's conclusions and recommendations may be largely invalid. Environment Canada therefore, recommends that the Panel include in its guidlines direction to the initiator (DIAND) to submit as part of the EIS a Canadian government policy statement on rate of production in the Beaufort Sea. The development scenarios and their impacts should be based on this policy statement rather than industry's assessment of what is technically feasible.

In identifying this deficiency it has been assumed that section 2.2.1. of the draft guidelines, "Need for Beaufort Sea Development", is directed at the proponent and will, therefore, result in an industry perspective on the need for and, therefore, the rate of development of

Beaufort Sea hydrocarbon resources rather than a Canadian government perspective. It should also be noted that section 2.2.1. does not require the proponent to consider competing hydrocarbon developments in his assessment of need.

3. Lack of Alternative Plans

The draft guidelines require the proponent to describe "a preliminary production and transportation plan to the year 2000" and consider "the consequence of variations in the plan." In the industry document, the proponent declines to use the term "preliminary plan", which already implies a great deal of flexibility, and prefers instead the term "scenario" or "story" which suggest an even greater degree of flexibility and uncertainty. In fact, in the industry document the proponent makes it very clear that "...numerous important factors...may alter the eventual, real time outcome of events." (page 12).

Given this degree of uncertainty it is not adequate, in the opinion of Environment Canada, to require the proponent to describe a single plan and "consider" the consequences of variation from it. Variations from the plan could be so significant as to make the entire EIS invalid. The proponent should, therefore, be directed to provide several alternative plans which span the range of development options that are technically and economically feasible. The impacts of each alternative should be identified and a comparative analysis of these impacts prepared including the relative impacts of tankers vs. pipelines, of different production rates, of different siting of production facilities, etc.

This approach would provide the public with a better understanding of the range of developments possible and the range of impacts possible, allowing expressions of choice within that range. It would also eliminate what is now a very real danger that significant public and private resources will be expended on reviewing a plan that may never be implemented and, worse, the danger that decisions regarding the socio-economic and environmental acceptability of future hydrocarbon development in the Beaufort Sea may be totally invalid because actual development turns out to bear little resemblance to the industry's June 1981 scenario.

4. Inadequate Issue Orientation

A great deal of effort has been expended over the past several months by many interested groups and individuals in trying to clearly identify and priorize the issues related to Beaufort Sea hydrocarbon production. The draft guidelines do not adequately reflect these efforts.

The first problem is that what constitutes an issue is not clearly defined. As a result, the proponent is directed to address a very wide range of concerns, many of which, upon analysis, appear not to be issues in themselves, but component parts of larger issues. For example, is permafrost an issue? It is certainly one consideration in assessing the integrity of various proposed structures, structural integrity being in turn a consideration in assessing the potential for a major oil spill. Major oil spills -- their probability, potential for clean-up and possible effect -- is probably the real issue the EIS should address with permafrost being noted in the guidelines as one of the factors that must be considered.

An analysis of each of the issues the proponent is directed to address in the draft guidelines would, in the opinion of Environment Canada, result in a much clearer understanding of the nature of each issue and, we suspect in a major restructuring of the issues list so that the real issues are clearly separated from their component parts.

Another serious inadequacy of the guidelines is that the issues are not priorized. The proponent is given complete freedom to stress one issue over another. Environment Canada feels that the Panel has a responsibility through the guidelines to clearly direct the proponent to concentrate his efforts on areas of greatest concern. Once the problem of what constitutes an issue is resolved, the Panel needs to further analyze each issue against some set of criteria (developed by the Panel, not the proponent) to determine the level of concern or significance of each issue. It is inadequate to provide very broad direction to the proponent to "focus" his attention on section 2.4 and to "include a comprehensive discussion of all potentially significant physical, biological and socio-economic effects." The direction must be specific as to what criteria are to be used to determine "significance" and on what issues in particular the proponent is to focus.

If, as stated in the draft guidelines, section 2.4. is the key component of the EIS, the public hearing on the draft guidelines should also focus on this section with the intention of seeking views on the nature and priority of the issues as initially defined by the Panel. To Environment Canada, the key issues appear to be:

1. Policy Issues
    a) An overall decision-making framework to direct and control development
    b) Government capacity to direct and control development
2. Scientific Issues
    a) Major Oil Spills -- probability, clean-up capability, impact potential
    b) Major Chemical Spills -- probability, clean-up capability, impact potential
    c) Adequate protection for significant natural and cultural resources
    d) Cumulative impacts of development

e) Potential atmospheric/ice regime modifications

f) Research and monitoring programs

Environment Canada is prepared at the request of the Panel to elaborate on these issues, their component parts and the types of information the initiator or proponent should be asked to provide for each.

5. Inadequate Emphasis on Environmental Processes

The draft guidelines focus very strongly on the inventory approach -- descriptions of static environments, the environment as it exists today and may exist tomorrow -- with almost no mention of environmental processes that are essential considerations in the prediction of environmental change. No environment is static, as the draft guidelines imply: "In describing the existing physical environment, consideration should be given to past and future changes *where relevant*" (author's emphasis). Changes are occurring naturally in the environment that will be impacted by the Proposal. That environment will be different in the future, whether or not the proposed development occurs. In order to be able to predict how the Proposal will alter the future environment of the area the processes that generate change must be defined and the proposed development analyzed to show how it will affect those processes. Unless this key analytical step is clearly required by the guidelines, the EIS may be of little predictive value, however lengthy and detailed its descriptions and inventories.

6. Pitfalls of the Zone Approach

There may be pitfalls in the use of a zone approach to impact identification, specifically in the averaging and generalizing of information. It may have the additional flaw of minimizing the emphasis placed on cumulative impacts between zones, and even outside the boundaries of the project (for example, actions by the USA, USSR or Denmark (Greenland) may affect Beaufort Sea development).

7. Additional Data Required

Although the data required by the draft guidelines to be included in the EIS appear to be extensive, the EIS document will actually be a synthesis and analysis (i.e., an interpretation) of more extensive research data. It is essential for a meaningful review of the EIS that all reports and documents upon which key conclusions are based be available to the reviewers in a timely manner and in sufficient quantities. The guidelines should make this a specific requirement of the proponent.

Specific Comments

Pg. 3, Lines 1-5

The intent of this statement appears to be to encourage the proponent to go beyond the requirements of the guidelines. However, the wording of the statement, particularly in the first two lines, opens the possibility of quite a different interpretation, allowing the proponent to disregard portions of the guidelines where he feels they are not appropriate. This possible interpretation is reinforced in several places throughout the document by phrases such as "where appropriate", which leave the proponent with considerable flexibility in following a particular guideline.

Pg. 7, Line 26

The question of knowledge deficiencies warrants considerable emphasis. A broad overview regarding our "state of knowledge" is useful. However, it is also essential to have an accurate assessment of prediction capability/

accuracy for each of the development components and environmental issues. With this in mind, a detailed evaluation of specific knowledge deficiencies should also be available.

Section 2.2.1.

The guidelines should require that the demand projections and costs and benefits take into account the possible development of alternative energy resources in Canada.

Section 2.2.2., Line 10

"Within the jurisdiction of DIAND, the proponents..." This decision would not appear to be the domain of the proponent.

Section 2.2.2., Line 15

The inclusion of "exploration drilling" under the heading of "Associated Projects..." tends to diffuse the emphasis this aspect of Beaufort development requires. Granted, a portion of such drilling will have an impact, yet remain apart from production activities. However, there will be considerable accelerated "pre-production" drilling which may fall into the "exploration" category. In fact the entire Gulf Canada proposal is of this nature. For these reasons it is felt that such activities should be considered as part of the development proposal and subject to Panel review.

Section 2.2.3.

A specific requirement of this section is an understanding of the technology to be used, the conditions under which it was used previously, its previous success, the difference in present circumstances and its likelihood of success. This should be clearly stated at the outset.

There is no clear reference to ship and barge traffic. Perhaps this matter could be combined in a single paragraph with d, e to keep the appropriate level of generality.

The question of water sources and water use should be addressed under both the Construction (2.2.3.2) and the Operational (2.2.3.3) phases of the project.

Section 2.2.3.1., Line 10

"tankers, pipeline(s) and all other linear transportation facilities."

Section 2.2.3.2., g)

A detailed list of potential sources of the various emissions/effluents is needed. In addition, the proponent should indicate the quantity and rate of release along with levels for key components within the effluent.

This type of information should also be provided for Operation and Maintenance activities (section 2.2.3.3 o to r).

Section 2.2.3.3 j)

This item should include "power supply" as a specific element.

Section 2.2.3.5.

Abandonment. In light of the 'will be abandoned', line 3, the 'if any' in line 6 seems superfluous. Line 17 might read better as, "The possibility and implications of early mothballing or total abandonment..."

Section 2.3, Pg. 15, Lines 23-27

The intent as stated is good, but the appendices belie it.

Section 2.3, Pg. 12, Line 16

The vessels employed should demonstrate their own capability to handle spills whether they are due to hull damage or other causes. It is suggested that this line read "abilities to avoid, control and clean-up spills".

Section 2.3., Pg. 12, Line 17

We suggest that this read "Descriptions of operation, maintenance and pollution prevention practices". There have been problems in the past concerning routine ship-board operations, e.g., oily bilge water, waste and sewage, tank washings and minor accidental spills of toxic substances. In particular the Valdez terminal has experienced difficulty with ships discharging oily ballast water at sea. The proponent should describe proposed methods for collecting, treating and disposing of such potential pollutants.

Section 2.3.1, Pg. 17, Lines 9 to 12

Reference is made to the selection of baseline components based on significance. A rationale or framework for the "test of significance" used should be provided.

Section 2.4.

Similar to Section 2.2.3, an analysis of the past history of the use of enhancement, mitigation and compensatory measures should be included along with a description of how present circumstances differ and an assessment of the potential impact of these differences on the success of such measures in the future.

There would appear to be insufficient emphasis on the necessity for comparative analysis in order to demonstrate selection of the optimal development strategy. Specific key comparisons should be identified with others to be included as necessary.

e.g. - Transportation modes and combinations.
- Locations for production and storage (sub-sea, semi-submersible, islands, shore based, etc.)
- Centralized vs. decentralized development (single port, multiple ports, single pipeline/transportation corridor vs. several).

Section 2.4, Pg. 19, Lines 21-23

These lines imply that effects should be described by generalizing for each zone. This approach will not be satisfactory. The description of effects should be grouped by zones, but in most cases the impacts will be site specific and should not be averaged out or generalized over the whole zone.

Pg. 21, Line 7

This paragraph urges an "overview fashion only" when dealing with international resources. In dealing with cumulative effects it is essential to give special attention to key resources (commercial or domestic use) as well as rare and endangered species. Some of the most important of these resources include transboundary migrants such as bowhead whales, caribou, etc.

There are significant stresses placed on these resources outside the Canadian Territorial boundaries. Similarly, stresses placed on them within Canada may have negative repercussions while in international waters, etc. For these reasons the potential for such impacts, their avoidance or mitigation should be adequately addressed in the EIS.

Section 2.4.1.3.

The questions of long term effects on permafrost of buried pipeline after abandonment needs to be addressed. This may be done either under this section or the abandonment procedures. Buried pipelines in permafrost could become exposed over a period of time at river crossings. As a result permafrost degradation may extend up the pipeline. The potential problems and remedial measures should be explored in the EIS.

Section 2.4.2.

In identifying positive and negative effects it should be made clear what is meant by positive vs. negative. What is good for moose isn't necessarily good for other wildlife.

Section 2.4.2.1.

We suggest you add: "effects on general air and water quality." Specifics should be addressed, such as patterns of distribution and accumulation, degradation rates, recovery time, etc.

Section 2.4.2.3.

Onshore Operations including Pipelines, 2nd part should read:

- Effects of upland and coast activities, particularly relating to the construction and operation of pipelines and the use of overland transportation routes such as the Dempster Highway on the calving grounds, etc.

Specific emphasis should be given to the potential impacts of land-based operations on terrestrial mammals, particularly grizzly bear and caribou.

A particular problem with bears is their attraction to campsites, refuse sites and other sources of food. The proponent should, therefore, provide detailed information on how garbage, etc. will be handled at permanent and temporary camps.

The question of impacts on caribou movement in relation to pipelines, corridors, roads, etc. should be addressed in detail. Further emphasis must be given to monitoring programs designed to provide data for improved mitigative measures. Monitoring of the Alyeska oil pipeline and Dempster Highway may provide some such data prior to any further northern developments.

Section 2.4.2.4

Specific attention should be given to effects of noise, false leads, destruction of critical habitat (e.g. ringed seal pupping lairs).

Section 2.4.2.5.

A separate analysis should be included covering the incidence, magnitude and impact of chronic crude oil spillage, e.g. production, transfer operations, etc.

Section 2.4.3

This general topic is one of the prime candidates for comparative analysis and assessment.

Presumably a risk/hazard analysis was carried out concurrently with, and as part of, the design in order to select and refine design options. The two aspects of such an analysis are the estimates of how the system will perform based on design and the reality of performance in the field. Both of these must be considered in assessing the overall risk. For this reason the company(s) should provide past performance information, how the design differs from past 'norms' and the impact of any changes on the overall risk.

Despite the low probability of an event there is always a finite chance of that event occurring. For this reason the proponent must provide the worst case scenario(s) as part of the EIS. This will enable the panel to be aware of the 'ultimate' risk.

The risk analysis should have identified the most likely sites, quantities, types, etc. of spills. Fate and effect information should be provided for both the worst case and the most likely scenarios. These should involve a range of origins.

e.g. Transportation (Pipeline, Tanker, Barge)
Production (subsea, island, shorebased, etc.)
Servicing (for each of the production options)
Storage (onshore, offshore, etc.)

The parameters involved in determining the scenarios, fate and effects should take particular account of seasonal constraints, e.g. ice vs. open water.

Section 2.4.4.

Effects on the Socio-Economic Environment should include a discussion of the potential impacts of an oil spill on Inuit hunting. This could possibly be addressed under 2.4.4.6 "Land and Resource Use".

Section 2.4.5.

Workers are often unaware of the environmental sensitivities and hazards associated with working in the north. The proponent should describe the educational programs which will orient new workers to the problems and procedures for the area, e.g. feeding animals, fishing and hunting restrictions, etc.

Appendix A.1

1) Types and levels of air pollutants and existing air quality for the region.

Appendix A.2

a) and b) Both of these items should include information on multi-year floes and ice islands.

Appendix A.4

The various oceanographic conditions identified should be formulated in such a manner as to address specific concerns, e.g., movement patterns affecting spilt oil, both chronic and disastrous, and its ultimate fate.

Appendix B, Pg. 6, Line 7.

Reference is made to taking account of natural variability. Rather, the proponent should document the natural variability for key areas so as to enable quantitative determinations of perturbances outside the norm.

a) The presence of oleoclasts is not as vital in terms of handling hydrocarbon contaminants as their activity level and effectiveness relative to specific hydrocarbon components.

a) to j) The key analysis involves the identification of those species' significant to man or essential within the ecosystem. This must then be related to the vulnerability of the food chain components, e.g. a risk analysis for an ecosystem.

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